Governor's STEM Academy Brief

VIRGINIA DEPARTMENT OF EDUCATION
Office of Career and Technical Education Services

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The purpose of this monthly brief is to provide information, resources, and a networking vehicle to support the STEM (science, technology, engineering, and mathematics) Academies in Virginia.

GOVERNOR'S STEM ACADEMIES SPOTLIGHT

CyberPatriot V, the nation's largest and fastest growing high school cyber defense competition, concluded its 2013 National Finals Competition at the Gaylord National Resort and Convention Center in National Harbor, Maryland. Out of the 419 Open Division teams that originally registered, team "VOID" of Chantilly Academy, Chantilly, Virginia, was the first place winner, taking home the President's Trophy. In that same division, the second and third place awards went to teams from Marshall Academy, Falls Church, Virginia. Congratulations! What an honor that Virginia brought home the top three awards in this division.

CAREER LINKS—AGRICULTURE, FOOD, AND NATURAL RESOURCES

- To explore careers in the Agriculture, Food, and Natural Resources Career Cluster, visit USDA Pathways Programs, U.S. EPA Careers and Internships, Careers in the Food and Nutrition Service, O*Net Online, and Virginia Career VIEW (search by Career Cluster).
- Explore counselor resources, career fields, clusters, and pathways in Agriculture, Food, and Natural Resources at www.iseek.org/careers/agriculture.html.
- Jobs in *Natural Resources* - Cyber-Sierra offers job-hunting tips and information on current jobs in Natural Resources and Forestry, Environment and Conservation, and Wildlife, as well as summer employment.
- Virginia Farm Bureau has up-to-date information on marketing trends, careers in agriculture, and links for additional career resources and classroom opportunities such as Agriculture in the Classroom.

GRANTS AND OPPORTUNITIES

- The Natural Resources Conservation Service of the United State Department of Agriculture has various student programs, internships, and scholarship opportunities available.
- Earth Team Volunteer Program offers exciting opportunities for students seeking unpaid work in the conservation field. Students can fulfill their school's community service requirements, earn academic credit, serve an unpaid internship, get resume-building work experience, or simply help the environment as a volunteer. Volunteers may work year-round.
- DuPont Pioneer and the National Association of Agricultural Educators (NAAE) award grants to provide agriscience educators with training and resources to implement advanced curriculum that will better prepare students for careers in agriculture and food. These grants will be awarded to selected teachers who are implementing Curriculum for Agricultural Science Education (CASE) but who need additional funding to help with three areas teachers have identified as cost barriers to implementing the program in their schools—teacher training, equipment and materials, and end-of-course assessments.
- Through the DuPont National Agriscience Teacher Ambassador Academy to be held July 14–19, 2013, selected agriscience teachers from across the United States travel to DuPont Chesapeake Farms to learn how to incorporate more science into their existing curriculums and make learning fun and challenging for their students. Over 170 teachers from 48 states have been a part of the Academy since its inception 10 years ago. The Academy's Ambassadors for Agriscience facilitate workshops at the National FFA Convention's Agriscience Institute in Louisville, Kentucky, helping other agriscience teachers learn how to teach science more effectively.

INSTRUCTIONAL STRATEGIES

- Chesapeake Bay resources for teachers are available from Chesapeake Bay Program, Chesapeake Bay Foundation, and CHESSIE (Chesapeake Science on the Internet for Educators).
- For ideas on how to structure a student project for investigating a local ecosystem, see the Pacific Education Institute's *Project-based Learning Model, Relevant Learning for the 21st Century*.
- My Community, Our Earth features resources for GIS-based projects that help students understand how the concept and methods of sustainability are applicable to their community.
- Virginia Department of Forestry Resources for Educators provides classroom activities on trees and forestry.
- Use ideas at http://www.educationworld.com/a_lesson/nutrition-month-activities.shtml to teach students how to make healthy choices about food and exercise.
- For STEM-focused classroom projects and lesson plans related to natural resources, see "Fuel for Debate: Examining the Natural Gas Fracking Controversy," "Teaching With Infographics | A Student Project Model," "Chemosynthetic Food Web," and "Baybackpack (science lessons)."
- Explore the NOAA site for educational resources on Oceans and Coasts, Climate, Weather and Atmosphere, Marine Life, Freshwater, and additional topics, such as Careers and Technology and the Ocean Service Education Lesson Plan Library—a database of natural resources lessons related to STEM disciplines. Visit Marine Debris for free educational posters, publications, and project information.
- Stanford University's School of Earth Sciences site offers a high school curriculum on climate change, including sources, consequences, and mitigation strategies. See also the site's resources link to discover videos, national and international reports on climate change, and simulations.
- Visit Climate Change, Agriculture, and Food Security, U.S. Environmental Protection Agency, U.S. Department of Agriculture, and The World Bank for the effect of climate change on agriculture and natural resources.
- Among resources on biotechnology in agriculture are The Council for Biotechnology Information (see links for fact sheets, timeline, and slideshows), Ag Biosafety (including bio-fuels), Agricultural Biotechnology (University of California), and USDA Agricultural Biotechnology.
- Explore agricultural and natural resources lesson plans at Georgia Agriculture Education, AgEdNet Lesson Libraries, ALEARN (aquaculture), Michigan Agriscience and Natural Resources Education, and US Environmental Protection Agency.
- Among useful sites on international agriculture and food production are World Savvy, Food and Agriculture Organization of the United Nations, Virginia Department of Agriculture and Consumer Services, and Worldwise Schools.
- Discovering the Food System, developed by Cornell University, emphasizes community food systems.
- The Institute of Food Science and Technology offers lesson plans and industry case studies.
- Grocery Manufacturers Association, American Beverage Association, Food Marketing Institute, US Department of Agriculture, FMI Regulatory Information, Virginia Farmers Direct Marketing Association, Fruits and Veggies: More Matters, and Institute of Food Technologists, which includes a section on food nanoscience, relate to food production, processing/packaging, safety and science.

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